

Interactive comment on “Climate data induced uncertainties in simulated carbon fluxes under corn and soybean systems” by Varaprasad Bandaru

Anonymous Referee #1

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The work presented in this manuscript describes the results of the effects of different climate data on simulated net ecosystem exchange (NEE) from corn and soybean fields.

Simulations done with gridded meteorological data from different origins are compared to simulations with measured data from tall towers.

The paper reads really well and the description of the work done is very comprehensive.

It is regrettable that no sensitivity analyses of the modelled NEE to climate data is done. The paper is meant to analyse the uncertainty of model outputs to climate data and a

prior sensitivity analyses of the simulated NEE to changes in temperature, short wave radiation, precipitation, etc. separately would have helped in the discussion and would have allowed solid conclusions.

I find it also a bit confusing to try to explain the effects of relative humidity as a variable since it is a combination of temperature and water content in the atmosphere. I would suggest considering the partial pressure of water vapour instead (or showing both to try to decorrelate with temperature) even though models require relative humidity as entry variable.

It would be useful to have a figure showing the variability of the studied variables with time (Temperature, shortwave radiation, precipitation) specially since you are considering a percentage error which would normally be higher for smaller values.

Lines 458-459 I don't quite understand the reference to litter decomposition. This may be relevant for forests or for agricultural systems where litter is left on the fields but maybe not so much for corn and soybean crops.

In the discussion and conclusion I am missing some discussion relative to the model used (which could link back to the sensitivity analysis). Your results are particularly linked to EPIC and conclusions could be different with another model that would have responded differently to climate variables.

Figures 2 and 5 are not very easy to read, I would suggest adding colors to be able to distinguish different datasets.

Figure 1 is not referenced in the paper, all references to figures are shifted by one.

Figure 3 and Table 3 are slightly repetitive, I would suggest merging the two in one figure or one table.

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Discussion paper

